



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/01060

September 27, 2002

Mr. Fred Patron
U.S. Department of Transportation
Federal Highway Administration
The Equitable Center, Suite 100
530 Center Street NE
Salem, OR 97301

Re: Reinitiation of Endangered Species Act Section 7 Consultation and the Magnuson-Stevens Act Essential Fish Habitat Consultation on the North Cannon Beach Entrance Project, Oregon Coast Highway, Clatsop County, Oregon

Dear Mr. Patron:

On June 28, 2001, National Marine Fisheries Service (NOAA Fisheries) transmitted to you our biological opinion (Opinion) (refer to: 2001/00695) Endangered Species Act Section 7 Formal Consultation and Essential Fish Habitat Consultation for North Cannon Beach Entrance Project, Oregon Coast Highway, Clatsop County, Oregon, a project to extend and retrofit an existing culvert.

On July 31, 2002, a representative of NOAA Fisheries met with Oregon Department of Transportation (ODOT) environmental and project staff at the site of the Federal Highway Administration's (FHWA) North Cannon Beach Entrance Project to discuss a proposed modification of the project to raise the culvert floor by 0.3 meters and construct a 'roughened chute' at the culvert outlet. The proposed modifications are necessary to overcome unforeseen site conditions that require construction changes while ensuring that the final project will still allow fish passage. This reinitiation of consultation is necessary because the proposed modifications will cause effects to the listed species that was not considered in this June 28, 2001 Opinion.

The proposed project modifications and additional conservation measures are described in a September 3, 2002 letter and a September 9, 2002 e-mail from ODOT to NOAA Fisheries. Adult and juvenile Oregon Coast (OC) coho salmon, which are listed as threatened under the Endangered Species Act, occur in the project area.

The enclosed Opinion is identical to that issued on June 28, 2001, except for changes necessary to reflect the proposed project modifications described above. Alterations made in the new Opinion include supplemental information describing the reinitiation process, changes in the



proposed action and its effects, and changes to Reasonable and Prudent Measure #3. This Opinion supercedes the one dated June 28, 2001, which should be discarded. The revised Opinion will be posted on NOAA Fisheries' website.

Please note that although the attached Opinion contains the same analysis of the effects of the proposed action on designated critical habitat that was included in the June 28, 2001 opinion, a federal court vacated the rule designating critical habitat for the evolutionarily significant units considered in this Opinion. The analysis and conclusions regarding critical habitat remain informative for our application of the jeopardy standard even though they no longer have independent legal significance. Also, if critical habitat is redesignated before this action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need for timely issuance of this Opinion, our critical habitat analysis has not been removed from this Opinion.

Questions regarding this letter should be directed to Tom Loynes of my staff in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

f.1

D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Bill Warnecke, ODOT
Nick Testa, ODOT
Joe Adamski, ODOT
Randy Reeve, ODFW

Reinitiation of
Endangered Species Act - Section 7
Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

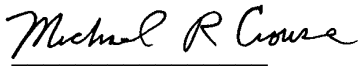
BIOLOGICAL OPINION

North Cannon Beach Entrance, Oregon Coast Highway
Clatsop County, Oregon

Agency: Federal Highway Administration

Consultation
Conducted By: NOAA Fisheries
Northwest Region

Date Issued: September 27, 2002

Issued By: 
fsl D. Robert Lohn
Regional Administrator

Refer to: 2002/01060

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1. ENDANGERED SPECIES ACT

1.1 Background

On January 10, 2001 the National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the North Cannon Beach/Oregon Coast Highway Project. The project will widen and improve an on/off ramp on Highway 101, the Oregon Coast Highway, at the northern end of the town of Cannon Beach. The project applicant is the Oregon Department of Transportation (ODOT). ODOT has designed the project and will administer the construction contract. This biological opinion (Opinion) is based on the information presented in the BA and the result of the consultation process.

The FHWA/ODOT has determined that Oregon Coast (OC) coho (*Oncorhynchus kisutch*) may occur within the project area. The OC coho were listed by the National Marine Fisheries Service (NOAA Fisheries) as threatened under the ESA on August 10, 1998 (63 FR 42587). NOAA Fisheries designated critical habitat for this species on February 16, 2000 (65 FR 7764) and protective regulations were issued on July 10, 2000 (65 FR 42422). Critical habitat includes all river reaches and estuarine areas accessible to listed coho salmon from coastal streams south of the Columbia River and north of Cape Blanco, Oregon. The FHWA/ODOT, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect OC coho salmon.

The FHWA/ODOT proposes to replace a hazardous intersection at the northern entrance to the city of Cannon Beach, at mile point 27.96 to 28.68, along the Oregon Coast Highway (Hwy 101) in Clatsop County, Oregon. This will involve shifting the alignment of the highway, improving the existing on and off ramps by lengthening them, and building an access lane for northbound traffic that will go under a newly constructed bridge along the highway. As a result of the excavation involved in the project, there will be approximately 95,000 cubic yards of fill that will be trucked to a private site for disposal. The project is located within the Ecola Creek watershed. Ecola Creek flows down from the Coast Range and into the Pacific Ocean, which is located about a mile to the west of the project area.

On July 31, 2002, a representative of the National Marine Fisheries Service (NOAA Fisheries) met with Oregon Department of Transportation (ODOT) environmental and project staff at the site of the Federal Highway Administration's (FHWA) North Cannon Beach Entrance Project. NOAA Fisheries completed a biological opinion for this project on June 28, 2001, (refer to: 2001/00695). The main purpose of the meeting was to discuss proposed changes to the project, assess any additional effects resulting from the proposed changes, and develop solutions to avoid or minimize the additional adverse effects. The proposed changes and additional conservation measures are described in a September 3, 2002 letter and a September 9, 2002 e-mail from ODOT to NOAA Fisheries.

This biological opinion (Opinion) is based on the information presented in the BA and the result of the consultation process. The consultation process has involved correspondence and meetings to obtain additional information and clarify the BA.

The objective of this Opinion is to determine whether the actions to improve the intersection and to dispose of fill associated with construction are likely to jeopardize the continued existence of the OC coho salmon, or destroy or adversely modify critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

This project is designed to improve safety at the intersection of the North Cannon Beach Access Road and Highway 101, near Cannon Beach, Oregon, at mile point 28.19. Within the period from 1991 to 2000 there were two fatal accidents and numerous injury accidents at this location. These are ascribed to the inability of motorists to enter Highway 101 safely, due to limited sight distance and other factors.

The proposed action will replace the existing southbound off ramp/northbound on ramp with an intersection that allows southbound Highway 101 traffic to exit the freeway, traffic from Cannon Beach headed south to enter Highway 101, and northbound traffic leaving Cannon Beach to enter Highway 101 (there is no off-ramp for traffic that is northbound on Highway 101). In order to accomplish the reconfiguration of the interchange, the highway alignment for a length of about 2,665 feet will be shifted to the west about 75 feet maximum. To the east of the highway there is steep terrain which will require cut slopes and the construction of retention walls. Along the west side of the southbound exit ramp, near the entry to a gorge area with an unnamed tributary to Ecola Creek, there will be a cut slope about 52 feet high. An existing concrete box culvert in the area of the new southbound ramp will be extended, with a countersunk base that will have a 1 foot deep, low flow fish channel in a natural rock bed. Large boulders will be placed every 7 feet throughout the length of the culvert to provide for additional structure.

As a result of the interchange construction, a large volume of fill and excess spoil material will be generated. Disposal of this overburden is considered a part of the project. This material will be trucked to an off-site location, the Circle Quarry Site, that is privately owned by Willamette Industries. This disposal site is located at mile point 25.80 on Hwy 101. Circle Creek is a fish-bearing stream that runs along Hwy 101 at the quarry site, however there will be no impacts to fish from the disposal of fill material at this site, which has a vegetated swale to filter sediment from erosion. The site meets FHWA/ODOT standards for disposal of overburden. Prior to the deposit of any overburden, the private landowner will be asked to demonstrate compliance with all state and federal environmental requirements.

In addition, approximately 2,850 trees with a six inch or greater diameter at breast height (dbh) will be removed to make way for the new on and off ramps and the realigned highway. These trees are within an area considered critical habitat for marbled murrelets and spotted owls, and the impacts to those species will be evaluated in the context of a section 7 consultation with the

US Fish and Wildlife Service (USFWS). The removal of these trees may affect OC coho by causing warmer temperatures within the watershed of the unnamed tributary to Ecola Creek. As mitigation for the loss of this forested stand, ODOT is purchasing 6.5 acres of land adjacent to the southbound ramp as part of this project. Of this parcel, approximately 6.1 acres are forested, with a biologically equivalent functional value. This land will be protected by conservation covenants.

Tree removal and other clearing activities will begin in the fall of 2001, after September 15. This is to ensure minimization of impacts to marbled murrelets and/or spotted owls. The project area will then be stabilized to ensure erosion control, and construction of the new alignment and on/off ramps will begin in July 2002. Work will continue through 2003. The on and off ramp construction and realignment phases of the project will take approximately ten weeks to complete. The preferred time to do this work is during the Oregon Department of Fish and Wildlife in-water work season, between July 1 and September 15. All construction activities that could impact aquatic habitats, with the exception of tree removal and wetlands mitigation, will take place within this time frame. If the in-water work period for 2002 and 2003 is revised from the current schedule, then the recommended time frames for those years will be followed. Any exceptions to the in-water work timing would be granted only after consultation with the ODFW regional watershed manager.

On July 31, 2002, the following changes were proposed that are the focus of this consultation reinitiation. The culvert floor will be raised by approximately 0.3 meters (m) and a “roughened chute” will be constructed at the outlet of the culvert to enable fish passage.

Two primary factors have combined to require alteration of the contract plans. The design of the culvert extension shown in the contract plans did not fit site conditions and the desired constructed condition due to incorrect survey elevations in the plans. However, the length of the proposed culvert extension is still consistent with the project description in the original BA and biological opinion. The second factor is that the bed excavated for the construction of the culvert was inundated with water due to a high ground water level and springs flowing into the area from the adjacent hill slope. This inundation forced the contractor to raise the surface of the concrete at the bottom end of the culvert by approximately 0.3 m. The raising of the outfall elevation was necessary to get the concrete floor of the culvert out of the water to allow adequate strength, stability, and longevity of the culvert. This will result in the streambed of the channel downstream of the culvert extension being about 150 millimeters (mm) below the culvert floor. This height difference and incorrect survey elevations may result in a perched culvert outlet that would interfere with fish passage.

The raise in the floor of the culvert has dropped the slope of the culvert from 7.5% to 5.4%. The simulated streambed within the culvert is 0.6 m thick. This will be reduced at the outfall of the culvert to 0.4 m, which is the minimum thickness required to maintain channel stability in the culvert extension. If the simulated streambed within the culvert extension were reduced in thickness below the minimum of 0.4 m, the simulated channel substrate would lose the ability to resist stream flow erosional forces and the culvert floor could be exposed, creating a fish passage

problem. The total height difference between the surface of the simulated streambed inside the culvert extension and the surface of the reconstructed natural streambed at the culvert outfall will be about 0.5 m. The reconstructed stream channel at the outfall of the culvert will be built to make up the height difference between the natural stream channel and the simulated channel within the culvert extension.

In order to address site conditions and ensure that the project provides fish passage, ODOT, with the agreement of FHWA, proposes to construct a roughened chute in the lower 18 m of stream channel just below the new culvert. This would eliminate the potential for a perched outlet and provide adult and juvenile fish passage to the culvert. This roughened chute would have approximately an 8.5% gradient for 18 m.

The channel reconstruction will be approximately 6 m wide at the outfall of the culvert to match the width of the culvert apron. This width may be reduced as the reconstructed channel approaches the natural stream profile. The reconstructed channel will be top-dressed with streambed material similar in gradation to the existing streambed below the culvert. An estimate of the reconstructed channel footprint would be 6 m wide by 18 m long for an area of 108 m².

Completing the channel reconstruction this summer will provide full fish passage through this section for the first time in decades and create less disturbance to the stream channel than would occur if the project were not completed this summer and the contractor had to resume working in the channel next summer.

1.3 Biological Information and Critical Habitat

Within the Ecola Creek watershed NOAA Fisheries has listed OC coho salmon (August 10, 1998, 63 FR 42587) as threatened under the ESA. Protective regulations were adopted under section 4(d) of the ESA on July 10, 1997 (65 FR 42422). NOAA Fisheries designated critical habitat for this species on February 16, 2000 (65 FR 7764). The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally impassable barriers. The adjacent riparian zone is defined based on key riparian functions. These functions are the area adjacent to a stream that provide shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

Timing of adult coho salmon river entry is largely influenced by river flow. Coho salmon normally wait for freshets before entering rivers. In general, adults return to the Ecola Creek watershed between October and January, with peak upstream migration usually occurring in October when the fall rains begin. OC coho salmon spawn in the Ecola Creek watershed from November to January in riffles or gravel deposits located downstream of pools. Coho fry emerge in March/April, and move into shallow off-channel habitat to forage and escape predation. During the summer low flow months, coho fry need a temperature that is less than 25 degrees Centigrade for successful rearing. Juvenile coho salmon rear for one year in fresh water before migrating to the ocean. Juvenile OC coho salmon migrate out of the Ecola Creek watershed as

smolts between mid-March and mid-June. Peak outmigration typically occurs in late April to early May (Weitkamp *et al.* 1995).

Within the boundaries of the project, which includes two unnamed tributaries of Ecola Creek, OC coho spawning has been observed. Fish are, however, present in one of the tributaries of Ecola Creek up to the point where fish passage is prevented by the existing culvert. These fish are cutthroat trout. While all of the tributaries to Ecola Creek are considered critical habitat, OC coho have not been observed in these unnamed tributaries below artificial barriers (Randy Reeve, personal communication to Greg Apke, 2000).

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the definition of the biological requirements and current status of the listed species, and evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of OC coho salmon.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess to the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that is relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environmental.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, spawning, holding, and rearing. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases, their status may have worsened. Abundance of wild coho salmon spawners in Oregon coastal streams declined during the period from about 1965 to roughly 1975 and has fluctuated at a low level since that time (Nickelson *et al.* 1992). Spawning escapements for this ESU may be at less than 5% of abundance in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al.* 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al.* 1995).

1.4.2 Environmental Baseline

The current range-wide status of the identified ESU may be found in Weitkamp *et al.* (1995). The identified action will occur within the range of OC coho salmon. The action area is defined as the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed where the on ramp/off ramp and culvert improvements will occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of the unnamed tributaries to Ecola Creek, extending upstream to the edge of disturbance, and extending downstream to the confluence of the unnamed tributary with Ecola Creek. Other areas

of the Ecola Creek watershed are not expected to be directly impacted. There will be temporary indirect impacts (temperature modification and sedimentation) to Ecola Creek caused by the removal of trees in the area of the unnamed tributary.

The unnamed, fish bearing tributary in the project vicinity is located in an area of commercial timber use. There is also some residential use that is within the jurisdiction of the city of Cannon Beach. This stream varies from 7 to 8 feet wide, with a cobble-gravel substrate with moderate sands, silts, and fines. It is typical of a properly functioning forested small coastal stream, with adequate levels of large woody material in the active channel, alternating areas of small pools and riffles, and variable gradient. This creek originates on timber land (Willamette Industries) that has previously been harvested. It flows westerly underneath Highway 101 at mile point 28.40 through a boxed culvert, and then through a metal pipe culvert on private land. Both the existing box culvert and the pipe culvert are barriers to upstream fish migration, blocking approximately 1.5 miles of good quality fish habitat. About one-quarter mile below the pipe culvert, the creek enters Ecola Creek. This confluence is within a tidally influenced zone.

The area around the creek and project area is primarily forest community, with some old growth characteristics in the form of nurse logs, dead and downed woody debris, and diverse, multi-strata vegetation layers found among the stumps of past timber harvest. Near the project area there are small residual stands of mature trees and wetlands. The species composition is mixed deciduous (red alder, bigleaf maple) and coniferous (sitka spruce, Western hemlock, and Douglas fir). Within the area that will be directly impacted by the project, there are approximately 1,200 trees with dbh of 6 to 12 inches, and approximately 1,633 trees of dbh greater than 12 inches; all of these trees will be removed to construct the on and off ramps, and realign the highway.

No stretch of Ecola Creek currently is listed on the Oregon Department of Environmental Quality's 303(d) list of water quality limited streams.

The OC coho are found in Ecola Creek, and may be present in the tributary that is within the project area; however, no fish have been observed above the privately-owned corrugated metal pipe culvert to the west of the project area. This is probably due to the inability of adult fish to migrate upstream beyond the culverts.

Based on the best available information on the current status of OC coho salmon range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of OC coho within the action area are not currently being met. The unnamed tributary has degraded habitat resulting from forestry practices, road building, and residential construction. The "physical barriers" habitat indicator is not properly functioning within the action area because of the presence of two culverts which currently block upstream fish passage. In addition, the following habitat indicators are at risk: Road density and location, disturbance history, and riparian reserves. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale (NMFS 1996). The effects of actions are expressed in terms of the expected effect - restore, maintain, or degrade - on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to OC coho:

1. The removal of forest habitat will result in temperature modification and a loss of instream complexity in the unnamed tributary. These effects may, in turn, affect the temperatures and rearing/resting habitat in Ecola Creek, downstream of the project area. Elevated summer temperatures can affect rearing juvenile coho, which reside for a year in small tributaries such as this one (although there are no juvenile coho present in the vicinity of the project area because of the fish passage barriers). Loss of forest habitat in the area of the on ramp/off ramp construction will remove shade, as well as the source material for input of large woody debris. The removal of riparian vegetation has the potential to alter the processes that result in the recruitment of large woody material, and to reduce the amount of benthic food sources (Spence *et al.* 1996). These impacts are expected to be localized and temporary.
2. Fish will benefit from improved treatment of stormwater coming off the highway. The increase in impervious surface to a total of 22,875 square yards will be offset by the construction of a new water treatment facility which will treat the equivalent of 23,065 square yards of impervious surface. Total suspended solids (TSS) will be treated by a forebay extended dry detention pond. The water quality treatment facility will be capable of providing detention for 10-year storm events. This is better than the current situation, in which all precipitation draining off the highway and intersection goes directly into roadside ditches and cross culverts, with no treatment. The net effect will be to improve conditions in the long term for OC coho found downstream of the project area and in Ecola Creek.
3. During the period of construction, turbidity and sedimentation will impact fish in the unnamed tributary. Any in-water work has the potential to increase erosion from the streambank, and turbidity in the creek. Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment. Localized increases of erosion/turbidity during in-water work will likely displace fish in the project area and

disrupt normal behavior. These effects are expected to be temporary (occurring during riprap placement, grading, and tree removal, and lasting until these areas of bare soil are stabilized), and localized.

4. Construction of the project will improve access to upstream habitats for OC coho. The restoration of fish passage will be accomplished by removing both of the current fish passage barriers (the reinforced box culvert under the highway and the corrugated metal pipe on private land). These will be replaced with one which allows upstream migration, thus potentially allowing access to approximately 1.5 miles of habitat for use by OC coho. These factors will benefit adult spawning, allow for adult and juvenile migration, and expand habitat available for juvenile salmonid rearing and resting. These effects should be permanent.
5. The loss of 0.42 acre of palustrine, forest wetland and 0.06 acre of riverine, streambed creek, a result of the increase in impervious surface discussed above, will reduce the natural capacity of the landscape to store flood waters, remove sediment, and transform nutrients. This could have water quality impacts to the Ecola Creek watershed and consequently to any fish in the system. A mitigation plan to restore and create 0.25 acre of wetland habitat at another location within the watershed, and additional palustrine riparian wetland habitat at the project site, will compensate for the loss of wetlands. Implementation of these measures will be monitored for at least three years after they are put into place.

The negative effects of these activities on OC coho and aquatic habitat will be kept to a minimum by implementing construction methods and approaches, included in the project design, that are intended to avoid or minimize impacts. These include:

1. A protective conservation easement will be established to protect stream and riparian habitat on land to the south/southwest of the project area, within the same watershed. Of the 6.5 acres in the parcel to be acquired by ODOT, 6.1 acres will be protected in perpetuity. The unnamed tributary to Ecola Creel flows through this property.
2. All in-water work will be done during the low-water season between July 1 and September 15, or if this schedule is revised, within the ODFW recommended in-water work periods during the years that construction takes place. Exceptions to this work timing will be carried out only after consultation with the ODFW watershed manager.
3. Wetlands loss will be mitigated at a site near the project area within the Cannon Beach city limits.
4. Erosion Control Plans and Pollution Control Plans (ECP and PCP) will limit the amount of sedimentation and turbidity that results from instream work.
5. New impervious surfaces will be treated by a water treatment facility.

Changes in the project proposed on July 31, 2002, have the potential to also affect fish passage and maintenance of surface stream flow. Raising the profile of the reconstructed channel approximately 0.5 m to match the simulated streambed inside the culvert enlarges the risk of losing surface flow through the project area. A hill slope exists on the south side of the stream and a relatively flat wetland area occurs on the north side. The channel is only constrained on one side by the hill slope. By raising the profile, the reconstructed channel would be raised above the surrounding ground surface, which increases the risk that subsurface stream flow would occur. The stream also could migrate away from the reconstructed channel downstream of the culvert outfall.

Voids may be left within the roughened chute if it is not constructed adequately. If these are not sealed properly over time, the stream's flow could disappear into these voids during low or moderate flows blocking migration of adult and juvenile fish. The FHWA has proposed conservation measures to counter these effects.

ODOT and FHWA have agreed to include the following conservation measures to ensure that the risk of subsurface flow will be minimized and that the stream's flow will stay in the channel and not migrate:

1. A roughened chute with a diversity of fill material sizes including fine materials will be installed. It would be thoroughly mixed (no layer stratification) and packed down into the channel. This chute will raise the stream bed elevation to match that of the simulated channel within the culvert extension culvert outlet, thereby minimizing the likelihood that the stream will downcut upstream to the culvert outlet.
2. A row of boulders will be keyed in to the bottom of the chute to stabilize the channel. These boulders will be almost entirely buried so that they do not interfere with passage.
3. The boulders, rocks, and gravel will be placed and tamped in layers. The material will be bucket tamped, which will help settle the gravel and fines around the rocks and boulders.
4. The Oregon Department of Fish and Wildlife (ODFW), ODOT biologists, or ODOT hydrologists will be on-site to assist the contractor in the sizing and placement of the material and will provide their expertise and make "field-fit" judgements on placement to enable fish passage.
5. Fine materials will be "washed" down into the voids in the chute to provide better sealing. This will be done in a manner that will not create turbidity downstream of the project.
6. Boulders will be placed strategically to help provide fish passage through the channel.

7. Work will be completed during the ODFW in-water work period so that it is done during a time of year when the fewest juvenile coho are present.
8. This project will be monitored and if changes need to be made to provide fish passage they will be completed.

The conservation measures described above, and agreed to by FHWA together with the provision of fish passage, will prevent any additional adverse effects from the culvert elevation and the roughened chute channel alteration to be added to the bridge project.

1.5.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include: Substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for OC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions will affect critical habitat. In the short term, temporary increase of sediments and turbidity and disturbance of riparian habitat is expected. The removal of approximately 2,850 mature trees will reduce the cooling effects that the shade from these trees provides in the summer, and will remove the source material for large woody debris (LWD) in this portion of the watershed. In the long term, a slow recovery process will occur as the replacement plants mature. The wetland mitigation site will provide an alternative area for the restoration of aquatic function. By opening up the area above the fish passage barriers, habitat that potentially can be used by OC coho will be available, and this may expand the range of these fish. The pollutants that currently flow from the highway during precipitation will be treated. NOAA Fisheries does not expect that these actions will diminish the value of the habitat for survival of OC coho salmon.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as upstream to the edge of disturbance extending downstream to Ecola Creek. A wide variety of actions occur within the Ecola Creek watershed, within which the action area is located. One significant change in land use that is assured as a result of this project is the removal of 6.5 acres of land from private development. Because of the condemnation of private property that will take place in order to construct on and off ramps for the new interchange, and the purchase of a privately

owned parcel that will be set aside in a conservation covenant, this area will no longer be developed into condominiums as was originally planned.

NOAA Fisheries is not aware of any other significant change in such non-federal activities that are reasonably certain to occur. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years. Future FHWA/ODOT transportation projects are planned in the Ecola Creek watershed. Each of these projects will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

After reviewing the current status of Oregon Coast coho salmon, the environmental baseline for the action area, the effects of the proposed North Cannon Beach Interchange, and the cumulative effects, it is NOAA Fisheries' opinion that this project, including modifications as proposed on July 31, 2002, is not likely to jeopardize the continued existence of the Oregon Coast coho salmon, and is not likely to destroy or adversely modify designated critical habitat. NOAA Fisheries applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment/turbidity impacts, temperature modification, and habitat loss. At the same time, there will be long term benefits to OC coho. This conclusion is based on findings that the proposed action will minimize death or injury to OC coho by limiting the amount of riparian vegetation that is removed, restoring creek banks, treating stormwater runoff, establishing a riparian reserve adjacent to the project area, and improving fish passage.

The bank stabilization and planting activities will increase the likelihood of a return to riparian function at the site. The disturbed riparian area and wetlands are all within the critical habitat for OC coho salmon. However, it will take at least five years of vegetation growth before function begins to return. The benefits of removing the fish passage barriers within the project area should accrue within a few years of the completion of construction, during the fall seasons when adult coho begin to migrate into smaller order tributaries. Similarly, the water treatment facility should show improvements to water quality shortly after construction is complete, no later than the year following the completion of the interchange. The effect of these actions will be to maintain or improve properly functioning aquatic habitat in the long term.

1.7 Reinitiation of Consultation

This concludes formal consultation on the North Cannon Beach Interchange improvement project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. “Harass” is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. “Incidental take” is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon because of detrimental effects from sediment pulses and increased temperature levels (non-lethal). Effects such as temporarily elevated temperatures are largely unquantifiable in the short-term, and are not expected to be measurable as long-term harm to coho salmon behavior or population levels. Therefore, even though NOAA Fisheries expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, the

NOAA Fisheries designates the expected level of take as "unquantifiable." Based on the information in the biological report, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to OC coho in Ecola Creek as well as any that may be present in the unnamed tributary, and to associated riparian habitat in the area of interchange construction. The action area is defined as along the streambed and streambank of the unnamed tributary of Ecola Creek, extending upstream to the edge of disturbance, and extending downstream to the confluence of the tributary with Ecola Creek. The maximum number of coho, if any are present, that may be killed during construction is 25 juveniles. If this number is exceeded, project activities must cease and consultation reinitiated.

2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimizing take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from interchange construction activities, measures shall be taken to limit the duration and extent of in-water work, to design such work to avoid harm to fish, and to time such work within the ODFW-approved in-water work period. Effective erosion and pollution control measures shall be developed and implemented to avoid the entry of pollutants and to minimize the movement of soils and sediment both into and within the creek, and to stabilize bare soil over both the short-term and long-term.
2. To minimize the amount and extent of take from loss of habitat and to minimize impacts to critical habitat, measures shall be taken to avoid impacts to wetland, riparian, and instream habitat, or where impacts are unavoidable, to replace lost wetland, riparian, and instream function.
3. To ensure effectiveness of implementation of the reasonable and prudent measures, all work isolation measures, lethal "take" of fish (if any occurs), relocation (non-lethal) "take" of fish, erosion control measures, new culvert design, conservation covenants, wetlands mitigation, and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria as described below in the terms and conditions.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, ODOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water work), the FHWA/ODOT shall ensure that:
 - a. All construction work within the 2-year floodplain, except for tree removal and restoration/creation of compensatory wetlands, will be done within the ODFW instream work period of July 1 to September 15. Any exception to the ODFW defined in-water work period will first be approved by the ODFW watershed manager in writing. A copy of this approval must be filed with NOAA Fisheries in order to ensure that the administrative record is complete.
 - b. All instream work will be isolated within coffer dams or using some other ODFW approved methods. Any fish entrapped within the work isolation area will be removed using the least harmful method feasible, and relocated to another area of the same creek.
 - c. Where riprap is necessary to armor creek banks, only clean, non-erodible, angular rock of sufficient size to ensure stability will be used.
 - d. An Erosion Control Plan (ECP) will be prepared and implemented by the FHWA/ODOT in cooperation with the contractor. This plan will include a site plan and narrative describing the methods of erosion/sediment control to be used to prevent erosion and sediment for contractor's operations related to disposal sites, clearing and grubbing, borrow pit operations, haul roads, and in-water construction activities. The ECP should include the following specifications:
 - i. Effective erosion control measures shall be in-place at all times during the contract. Construction within the 5-year floodplain will not begin until all temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place, downslope of project activities within the riparian area. Erosion control structures will be maintained throughout the life of the contract.
 - ii. Sediment containment devices will include materials for use between the water diversion dams to absorb sediments from any water that leaks through the upper dam.
 - ii. The contractor will have the following on hand: 50 weed-free straw bales, 150 feet of unsupported silt fence, and 25 biobags, in order to address unexpected rain events, or failure of other measures to contain sediment. In addition, the contractor will have available plastic sheeting for immediate protection of unvegetated areas (where seeding/mulching are not appropriate), in accordance with ODOT's standard specifications.
 - iv. Erosion control blankets or heavy duty matting (*e.g.*, jute) may be used on steep unstable slopes in conjunction with seeding or prior to seeding.
 - v. Sills or barriers may be placed in drainage ditches along cut slopes and on steep grades to trap sediment and prevent scouring of the ditches. The barriers will be constructed from rock and straw bales.
 - vi. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.

- vii. All temporarily exposed areas will be seeded and mulched. Erosion control seeding and mulching, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within 7 days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.
- viii. All erosion control devices will be inspected during construction to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.
- ix. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.
- x. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground. Catch basins shall be maintained so that no more than 6 inches of sediment depth accumulates within traps or sumps.
- xi. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters an aquatic resource area. Silt fences or other detention methods will be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
- e. A Pollution Control Plan (PCP) will be prepared and implemented by the FHWA/ODOT in cooperation with the contractor. This plan will include the following:
 - i. A provision that all equipment that is used for in-stream work will be cleaned prior to entering the 2-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.
 - ii. A description of methods for confining and removing and disposing of excess concrete, cement and other construction materials, and the methods that will be used for equipment cleaning
 - iii. A spill containment and control plan that includes notification procedures, specific containment and clean up measures which will be available on site, proposed methods for disposal of spilled material, and employee training for spill containment.
 - iv. A description of the measures to be used to reduce and recycle hazardous and non-hazardous waste generated from the project.

- v. A description of the measures that will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.
 - vi. Identification of areas for fuel storage, refueling and servicing of construction equipment and vehicles. These will be located at least 300 feet away from the 2-year floodplain of any waterbody. Overnight storage of wheeled vehicles must occur at least 300 feet away from the 2-year floodplain of any waterbody. Overnight storage of non-wheeled vehicles is allowed within the 2-year floodplain during the in-water work window; however, to minimize the risk of fuel reaching the water, refueling of these vehicles must not occur after 1 pm (so the vehicles do not have full tanks overnight).
 - vii. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and ODEQ's provisions for maintenance of water quality standards not to be exceeded within North Coast watersheds (OAR Chapter 340, Division 41). Toxic substances shall not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed ODEQ water quality standards.
 - vii. The person identified as the Erosion and Pollutant Control Manager (EPCM) shall also be responsible for the management of the contractor's PCP.
2. To implement Reasonable and Prudent Measure #2 (wetland, riparian, and instream habitat), the FHWA/ODOT shall ensure that:
- a. Any areas cleared during construction will be seeded with a native seed mixture, and mulched, to prevent erosion.
 - b. Wetland restoration will be carried out within the same watershed, at a site approved by the city of Cannon Beach. This work will be completed no later than two years after the end of construction of the North Cannon Beach interchange.
 - c. No water withdrawal from natural streams in the Ecola Creek watershed for any construction purposes, including but not limited to hydroseeding or irrigation of plantings, shall take place.
 - d. Culverts will be designed to allow fish passage, per ORS 498.268 and ORS 509.605 (Oregon's fish passage guidance).
3. To implement Reasonable and Prudent Measure #3 (work isolation measures), the FHWA shall ensure that:
- a. All significant riparian replant areas will be monitored for a minimum 3-year period to ensure the following:

- i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.
 - ii. Plantings are performing correctly and have a 80% survival rate.
- b. Failed plantings and structures will be replaced.
- c. By December 31 of the year following the completion of construction, the FHWA shall submit to NOAA Fisheries a monitoring report with the results of the monitoring required in terms and conditions above.
- d.. Within 6 months of the completion of construction, the FHWA shall report any incidental *take* associated with the fish relocation aspects of the project, using the scientific taking permit form provided by ODFW (ODFW 2001).
- g. On an annual basis, for 5 years after completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success in meeting hydrologic functions and fish passage within the roughened chute at different flows. This report will consist of the following information:
 - i. Documentation of the results of hydrologic monitoring of the new channel, to include the following elements:
 - (1) Water velocity profiles throughout the channel during low, medium and migratory flows.
 - (2) Observations of juvenile and adult fish usage and passage.
 - (3) Survey of the channel to determine whether design goals were met and whether fish passage can be further enhanced.
 - ii. Within 1 year of the completion of construction, the FHWA shall evaluate the efficacy of the new culvert in providing fish passage. The results of this evaluation will be used to assess future culvert retrofits and designs for small Oregon coastal streams and their tributaries.
- f. Within 3 years of the completion of construction, the FHWA shall provide a report on the restoration of wetlands.
- g. All monitoring reports shall include the following for project identification:
 - i. Project name.
 - ii. Starting and ending dates of work completed for this project.
 - iii. FHWA contact person.
- h. All monitoring reports will be submitted to:
 - NOAA Fisheries
 - Oregon Habitat Branch
 - Attn: 2002/01060
 - 525 NE Oregon Street
 - Portland, OR 97232

3. MAGNUSON-STEVENSON ACT

Public Law 104-267, the Sustainable Fisheries Act of 1996, amended the Magnuson-Stevens Act to establish new requirements for essential fish habitat” (EFH) descriptions in Federal fishery

management plans and to require Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH, defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed groundfish (PFMC 1998a), coastal pelagics (PFMC 1998b) and Pacific salmon fisheries (PFMC 1999). EFH includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (*i.e.*, properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation).

The Magnuson-Stevens Act requires consultation for all actions that may adversely affect EFH, and it does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

The consultation requirements of section 305(b) of the Magnuson-Stevens Act (16 U.S.C. 1855(b)) provide that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

3.1 Identification of Essential Fish Habitat

The Columbia River estuary and the Pacific Ocean off the mouth of the Columbia River are designated as EFH for groundfish and coastal pelagic species (PFMC 1998a and PFMC 1998b). The marine extent of groundfish and coastal pelagic EFH includes those waters from the nearshore and tidal submerged environments within Washington, Oregon, and California state territorial waters out to the exclusive economic zone (200 miles) offshore between the Canadian border to the north and the Mexican border to the south.

The designated salmon fishery EFH includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except above the impassable barriers identified by PFMC (PFMC 1999). Chief Joseph Dam, Dworshak Dam, and the Hells Canyon Complex (Hells Canyon, Oxbow, and

Brownlee Dams) are among the listed man-made barriers that represent the upstream extent of the Pacific salmon fishery EFH. Salmon EFH excludes areas upstream of longstanding naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). In the estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (200 miles) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999). The proposed action area encompasses the Council-designated EFH for chinook salmon (*Onchorhynchus tshawytscha*) and for coho salmon (*Onchorhynchus kisutch*).

3.2 Proposed Action

The proposed action is detailed above, in section 1 of this Opinion. The proposed action area includes the tidally influenced confluence of Ecola Creek and an unnamed tributary to Ecola Creek, and the area of the unnamed tributary that is within and downstream of the zone of construction. These waters flow into the Pacific Ocean, thus contributing to the estuarine environment. The estuarine and offshore marine waters are designated EFH for various life stages of 62 species of groundfish and 5 coastal pelagic species. A detailed description and identification of EFH for coastal pelagic species is found in Amendment 8 to the *Coastal Pelagic Species Fishery Management Plan* (PFMC 1998b). The proposed action area also encompasses the Council-designated EFH for chinook and coho salmon. A description and identification of EFH for salmon is found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of the impacts to these species' EFH from the above proposed FHWA action is based on this information.

The objective of this EFH consultation is to determine whether the proposed action may adversely affect EFH for the species listed above. Another objective of this EFH consultation is to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse impacts to EFH resulting from the proposed action.

3.3 Effects of the Proposed Action

NOAA Fisheries expects that the effects of this project on chinook and coho salmon EFH, as well as those for coastal pelagics and groundfish, are likely to be within the range of effects to listed coho salmon considered in the ESA portion of this consultation. Based on that analysis, NOAA Fisheries finds that the proposed project is likely to adversely affect EFH for coho and chinook salmon, and may also adversely affect EFH for groundfish and coastal pelagics.

3.4 Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA/ODOT, all Conservation Recommendations outlined above in section 1.2, and all of the reasonable and prudent measures and the terms and conditions contained in sections 2.1 and 2.2, are applicable to salmon, groundfish, and coastal pelagics EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.5 Supplemental Consultation

The FHWA/ODOT must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised in a manner that may adversely affect EFH or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR Section 600.920[k]).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

Beamer, E.M., and R.A. Henderson, 1998. Juvenile Salmonid Use of Natural and Hydromodified Bank Habitat in the Mainstem Skagit River, Northwest Washington. Fisheries and Environmental Services for the Swinomish Tribal Community, Upper Skagit and Sauk-Suiattle Indian Tribes.

Nickelson, T.E., J.W. Nicholas, A.M. McGie, R.B. Lindsay, D.L. Bottom, R.J. Kaiser, and S.E. Jacobs. 1992. Status of Anadromous Salmonids in Oregon Coastal Basins. Oregon Department of Fish and Wildlife, Portland, OR.

NMFS. 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. Protected Resources Division, Portland, Oregon, 5 pp.

NMFS. 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon, 32 p.

ODEQ. 1999. ODEQ's 1998 303d List of Water Quality Limited Streams & Oregon's Criteria Used for Listing Waterbodies. Oregon Department of Environmental Quality (ODEQ), Portland, Or. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

ODFW. 2001. 4d Application Period for New Projects not Submitted in Fall 2000 Application. Oregon Department of Fish and Wildlife, Portland, Or.

ODSL. 1995. Essential Indigenous Salmonid Habitat, Designated Areas (OAR 141-102-030). Oregon Division of State Lands. Portland, Or.

PFMC (Pacific Fishery Management Council), 1998a. *Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan*. October 1998.

PFMC (Pacific Fishery Management Council), 1998b. *The Coastal Pelagic Species Fishery Management Plan: Amendment 8*. December 1998.

PFMC (Pacific Fishery Management Council). 1999. *Amendment 14 to the Pacific Coast Salmon Plan*. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.

- Reeve, Randy. 2000. Personal communication to Greg Apke, ODOT biologist. Oregon Department Fish and Wildlife Fish Division, Portland, OR.
- Spence, B.C., G.A. Lomnický, R.M. Hughes, and R.P. Novitzki. 1996. An Ecosystem Approach to Salmonid Conservation. TR-4501-96-6057.
- Weitkamp, L.A., T.C. Wainwright, G.J. Brant, G.B. Miller, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California. U.S. DOC, NOAA Tech. Memo. NMFS-NWFWC-24, 258 p.